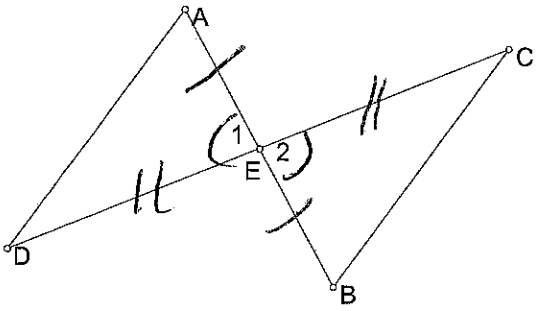
#2 + #5 the D moved
#11 Notation

Mrs. Hayden

Name Key Date

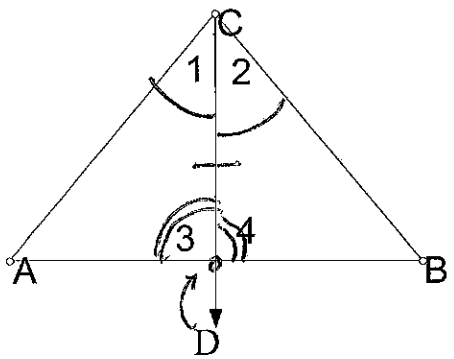
201 Chapter 4: Proofs

1. Given: E is the midpoint of $\overline{AB}$ and $\overline{CD}$
   Prove: $\angle D \cong \angle C$



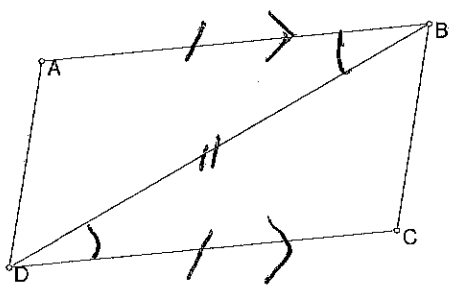
Statements	Reasons
(1) ~	(1) Given
(2) $\overline{AE} \cong \overline{BE}$, $\overline{DE} \cong \overline{CE}$	(2) def of Midpt
(3) $\angle 1 \cong \angle 2$	(3) Vert Ls $\cong$
(4) $\triangle AED \cong \triangle BEC$	(4) SAS
(5) $\angle D \cong \angle C$	(5) CPCTC

2. Given: $\overrightarrow{CD}$ bisects $\angle ACB$; $\angle 3 \cong \angle 4$
   Prove: $\angle A \cong \angle B$



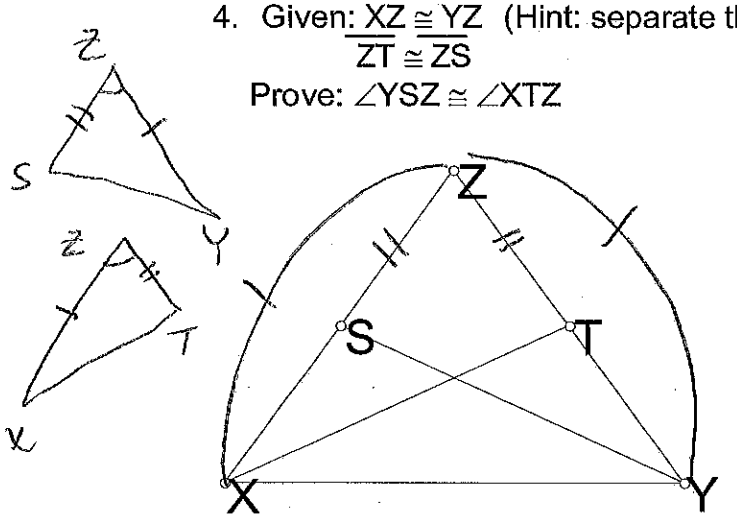
Statements	Reasons
(1) ~	(1) Given
(2) $\angle 1 \cong \angle 2$	(2) def of $\angle$ bis
(3) $\overline{CD} \cong \overline{CD}$	(3) Reflexive
(4) $\triangle ACD \cong \triangle BCD$	(4) ASA
(5) $\angle A \cong \angle B$	(5) CPCTC

3. Given: $\overline{AB} \cong \overline{CD}$; $\overline{AB} \parallel \overline{CD}$
   Prove: $\overline{AD} \cong \overline{CB}$



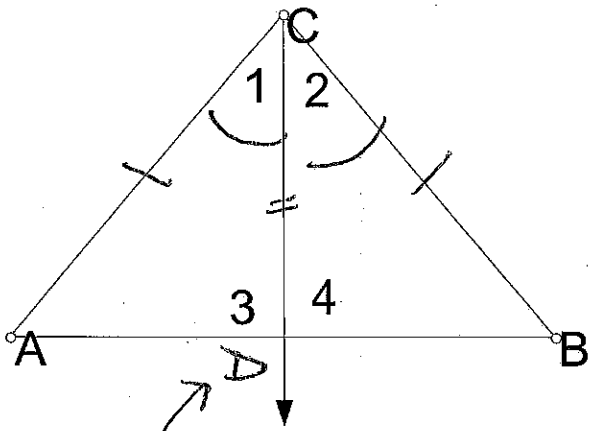
Statements	Reasons
(1) ~	(1) Given
(2) $\overline{DB} \cong \overline{DB}$	(2) Reflexive
(3) $\angle ABD \cong \angle CDB$	(3) Alt. Int Ls Thm
(4) $\triangle ABD \cong \triangle CDB$	(4) SAS
(5) $\overline{AD} \cong \overline{CB}$	(5) CPCTC

4. Given: $\overline{XZ} \cong \overline{YZ}$ (Hint: separate the triangles)
$\overline{ZT} \cong \overline{ZS}$
Prove: $\angle YSZ \cong \angle XTZ$



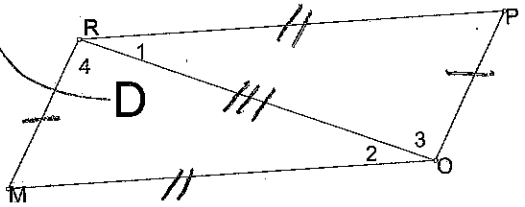
Statements	Reasons
(1) ~	(1) Given
(2) $\angle Z \cong \angle Z$	(2) Reflexive
(3) $\triangle SZY \cong \triangle TZX$	(3) SAS
(4) $\angle YSZ \cong \angle XTZ$	(4) CPCTC

5. Given: $\overline{AC} \cong \overline{BC}$; $\angle 1 \cong \angle 2$
Prove: $\overline{DA} \cong \overline{DB}$



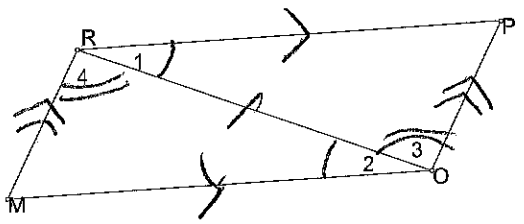
Statements	Reasons
(1) ~	(1) Given
(2) $\overline{CD} \cong \overline{CD}$	(2) Reflexive
(3) $\triangle ADC \cong \triangle BDC$	(3) SAS
(4) $\overline{DA} \cong \overline{DB}$	(4) CPCTC

6. Given: $\overline{MO} \cong \overline{PR}$; $\overline{RM} \cong \overline{OP}$
Prove: $\angle 1 \cong \angle 2$



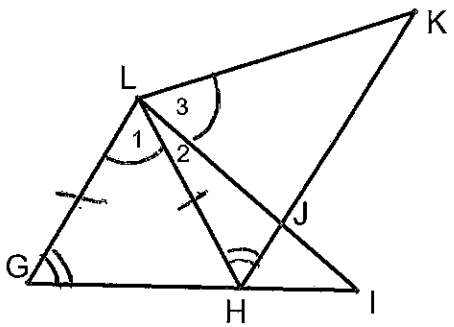
Statements	Reasons
(1) ~	(1) Given
(2) $\overline{RO} \cong \overline{RO}$	(2) Reflexive
(3) $\triangle ROP \cong \triangle ORM$	(3) SSS
(4) $\angle 1 \cong \angle 2$	(4) CPCTC

7. Given: $\overline{RP} \parallel \overline{OM}$; $\overline{RM} \parallel \overline{PO}$
Prove: $\overline{RM} \cong \overline{OP}$



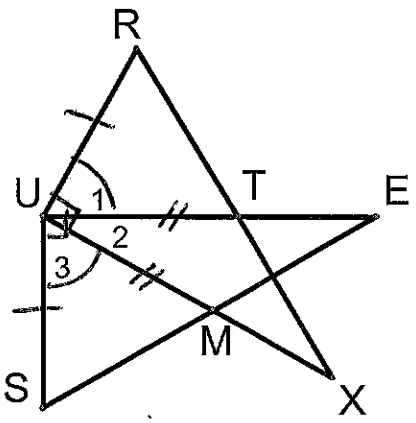
Statements	Reasons
(1) ~	(1) Given
(2) $\overline{RO} \cong \overline{RO}$	(2) Reflexive
(3) $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$	(3) Alt. Int. $\angle$s Thm
(4) $\triangle ROP \cong \triangle ORM$	(4) ASA
(5) $\overline{RM} \cong \overline{OP}$	(5) CPCTC

8. Given: $m\angle 1 = m\angle 3$; $\overline{LG} \cong \overline{LH}$; $\angle G \cong \angle LHJ$
Prove: $\triangle GLI \cong \triangle HLK$

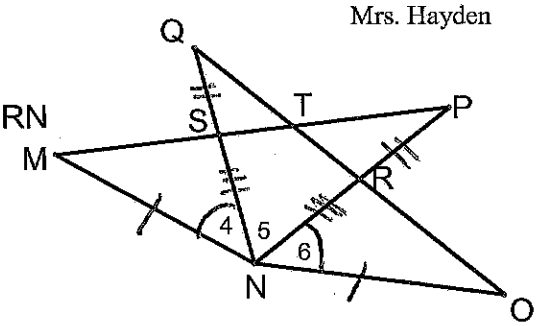


Statements	Reasons
(1) ~	(1) Given
(2) $m\angle 2 = m\angle 2$	(2) Reflexive
(3) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	(3) Addition
(4) $m\angle 1 + m\angle 2 = m\angle GLI$ $m\angle 3 + m\angle 2 = m\angle HLK$	(4) S.A.P.
(5) $m\angle GLI = m\angle HLK$	(5) Subs.
(6) $\angle GLI \cong \angle HLK$	(6) def of $\cong$
(7) $\triangle GLI \cong \triangle HLK$	(7) ASA

9. Given: $\overline{RU} \perp \overline{UM}$; $\overline{UT} \perp \overline{US}$; $\overline{UT} \cong \overline{UM}$; $\overline{UR} \cong \overline{US}$
Prove: $\overline{TR} \cong \overline{MS}$



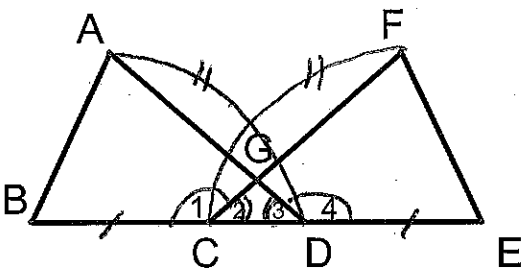
Statements	Reasons
1. ~	1. Given
2. $\angle 1$ & $\angle 2$ are compl.	2. If the non-adjacent sides of two acute $\angle$s are $\perp$, then the $\angle$s are complementary.
3. $\angle 3$ & $\angle 2$ are compl.	3. (same as #2)
4. $\angle 1 \cong \angle 3$	4. $\cong$ Compl. Thm
5. $\triangle UTR \cong \triangle UMS$	5. SAS
6. $\overline{TR} \cong \overline{MS}$	6. CPCTC



10. Given: $m\angle 4 = m\angle 6$; $\overline{MN} \cong \overline{NO}$; QS = PR; SN = RN
Prove: $\Delta MNP \cong \Delta ONQ$

Statements	Reasons
(1) ~~~	(1) Given
(2) $m\angle 5 = m\angle 5$	(2) Refl
(3) $m\angle 4 + m\angle 5 = m\angle 6 + m\angle 5$	(3) Add
(4) $m\angle 4 + m\angle 5 = m\angle MNP$	(4) AAP
(5) $m\angle 6 + m\angle 5 = m\angle ONQ$	(5) AAP
(6) $m\angle MNP = m\angle ONQ$	(6) Subst
(7) $\angle MNP \cong \angle ONQ$	(7) def of $\cong$
(8) $QS + SN = PR + RN$	(8) Add
(9) $QS + SN = QN$ $PR + RN = PN$	(9) SAP
(10) $QN = PN$	(10) Subst
(11) $\overline{QN} \cong \overline{PN}$	(11) def of $\cong$
(12) $\Delta MNP \cong \Delta ONQ$	(12) SAS

Not on test ✱ 11. Given: $\overline{BC} \cong \overline{DE}$; $\angle 1 \cong \angle 4$; $\overline{AD} \cong \overline{FC}$
Prove: $AB \cong FE$



Statements	Reasons
(1) ~~~	(1) Given
(2) $\angle 1 + \angle 2$ are LP $\angle 4 + \angle 3$ are LP	(2) def of LP
(3) $\angle 1 + \angle 2$ are suppl. $\angle 4 + \angle 3$ are suppl	(3) LPP
(4) $\angle 2 \cong \angle 3$	(4) $\cong$ suppl. thm
(5) $CD = CD$	(5) Refl
(6) $BC + CD = CD + DE$	(6) Add
(7) $BC + CD = BD$ $CD + DE = CE$	(7) SAP
(8) $BD = CE$	(8) Subst
(9) $\overline{BD} \cong \overline{CE}$	(9) def of $\cong$
(10) $\Delta ABD \cong \Delta FEC$	(10) SAS

(11) $\overline{AB} \cong \overline{FE}$ (11) CPCTC